

Application no. 09/154,966  
Amdt. dated June 8, 2004  
Reply to Office Action of April 7, 2004

**Amendment to the Claims**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

**Claims 1-13 (cancel)**

**Claim 14-17 (withdrawn)**

**Claim 18 (cancel)**

**Claim 19 (new):** A dedicated bandwidth data communication switch backplane, comprising:

a plurality of switching controllers; and

a plurality of packet buses, each of the packet buses comprising:

a root, coupled to one of the plurality of switching controllers, for receiving packet data from the associated switching controller; and  
a plurality of leaves for transmitting packet data received from the root, wherein of the plurality of leaves are coupled to two or more of the plurality of switching controllers;

wherein each of the plurality of switching controllers is adapted to concurrently transmit packet data to every other switching controller, and each of the plurality of switching controllers is adapted to concurrently receive packet data from two or more of the plurality of switching controllers.

**Claim 20 (new):** The backplane according to claim 19, further comprising:

a plurality of claim lines, each claim line interfacing with one or more of the plurality of the switching controllers and having an association with a different one of the plurality of packet buses, wherein a switching controller transmits a claim signal on a packet bus's associated claim line upon identifying a packet propagated on the packet bus for capturing.

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**Claim 21 (new):** The backplane according to claim 19, further comprising:

a plurality of stall lines, each stall line having:

a stall line root interfacing with a different one of the plurality of  
switching controllers, and

a plurality of stall line leaves interfacing with two or more of the plurality  
of the switching controllers,

wherein each stall line is associated with a different one of the packet  
buses;

wherein a switching controller transmits a stall signal from a stall line leaf to the  
stall line root on a packet bus's associated stall line upon identifying a  
congestion condition for the packet bus.

**Claim 22 (new):** The backplane according to claim 19, wherein at least one of the  
switching controllers comprises:

a protocol domain interface adapted to receive packet data from a protocol  
domain;

a transmit interface, coupled to a first packet bus of the plurality of packet buses,  
adapted to transmit packet data received from the protocol domain to one or  
more of the plurality of switching controllers; and

a receive interface adapted to receive packet data transmitted from two or more of  
the plurality of switching controllers in parallel via two or more of the plurality  
of packet buses.

**Claim 23 (new):** The backplane according to claim 22, wherein said at least one of the  
switching controllers further comprises:

a plurality of claim line interfaces adapted to exchange claiming information for  
the received packet data with one or more of the plurality of switching  
controllers.

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**Claim 24 (new):** The backplane according to claim 22, wherein said at least one of the switching controllers further comprises:

a plurality of stall line interfaces adapted to transmit congestion information for the plurality of packet buses to one or more of the plurality of switching controllers.

**Claim 25 (new):** A method for selectively filtering packets in a data communication switch backplane comprising a plurality of switching controllers and a plurality of packet buses, each packet bus having a root interfacing with a different one of the switching controllers and a plurality of leaves interfacing with two or more of the plurality of switching controllers, wherein two or more of the plurality of the switching controllers are adapted to transmit packet data in parallel from the plurality of roots, the method comprising:

for each packet, on each receive interface, determining if the packet's destination address is a recognized forwarding address;

for each packet, on each receive interface on which the packet's destination address is recognized, transmitting a claim signal to other receive interfaces on one of a plurality of claim lines reserved for the packet bus on which the packet was received;

for each packet, on each receive interface on which the packet's destination address is not recognized, determining whether a claim signal has been received from another receive interface;

on each receive interface, capturing the packet for which a destination address is recognized on the receive interface or for which a claim signal has not been received from another receive interface; and

on each receive interface, filtering the packets for which a destination address is not recognized on the receive interface and for which a claim signal has been received from another receive interface.

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**Claim 26 (new):** A method for preventing congestion in a data communication switch backplane comprising a plurality of switching controllers and a plurality of packet buses, each packet bus having a root interfacing with a different one of the plurality of switching controllers and a plurality of leaves interfacing with two or more of the plurality of switching controllers, wherein two or more of the plurality of the switching controllers propagate packet data in parallel from the roots with which the switching controllers interface to the leaves, the method comprising:

on each transmit interface, propagating packets to a plurality of receive interfaces;  
on each receive interface, capturing the packets for which forwarding is indicated;  
for each packet, on each receive interface on which the packet is captured,  
determining whether there is sufficient room to queue the packet in a forwarding queue;  
for each packet, on each receive interface on which there is not sufficient room to queue the packet in the forwarding queue, transmitting a stall signal to a transmit interface on a first stall line of a plurality of stall lines reserved for the packet bus on which the packet was received; and  
on each transmit interface which has received a stall signal, suspending the propagation of additional packets.

**Claim 27 (new):** A dedicated bandwidth data communication switch backplane, comprising:

a plurality of packet buses; and  
a plurality of switching controllers connected on the plurality of packet buses;  
each of the switching controllers comprising:  
a transmit interface for transmitting packet data on one of the plurality of packet buses to each of the other switching controllers; and  
a plurality of receive interfaces for receiving packet data on two or more of the plurality of packet buses;  
wherein the plurality of switching controllers are adapted to transmit packet data in parallel on a different one of the plurality of packet buses, and each of the

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plurality of switching controllers is adapted to receive packet data in parallel  
from two or more of the plurality of packets buses.